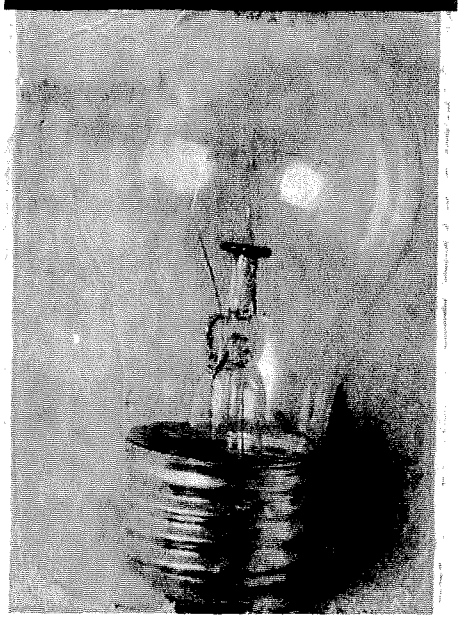
Environment



# Energy Conservation

**by Dave Eggleston**

*Because energy waste can be found in most businesses, there are tremendous opportunities for reducing energy consumption and thereby reducing costs. The over-consumption of energy is often hidden; maybe it's part of a practice that has been used for years and never exposed to newer processes. This article by Dave Eggleston will address blast cleaning—a process that can be updated by using shot flow valves. The result is a considerable savings in energy and money.*

Over the last 50 years, more than 20,000 abrasive blast cleaning machines were produced by companies such as Wheelabrator-Frye, Pangborn and others. They are found in the steel industry, automotive, construction and many others. The amazing fact is not that so many were built, but that they are still being used today. The vogue for years was to build machines with large wheel motors, (75, 100 and 125 HP), and with multiple wheels (6, 8 and 10). The shot flow method used was semi-fixed mechanical—a slide gate with an air actuated dipper valve which turned on and off the shot and also controlled the flow rate (pounds per minute). More often than not, the slide-gate was set once and forgotten because re-adjusting it was difficult and time consuming. The result was that all product, regardless of size and composition, received the same cleaning treatment.

With the advent of the MagnaValve®, a custom shot flow program can be created for each product or product type. Most modern abrasive blast cleaning machines are designed with 40 to 60 HP wheel motors with variable speed wheels and MagnaValves. It's very easy to retrofit a MagnaValve to an older machine and reduce the load on large motors through shot flow control.

So now we have an opportunity: How much can be saved by reducing the load on an 100 HP motor? Follow the formula below to see how much energy (and money) can be saved by reducing the load from 100 HP to 60 HP.

## Energy savings formula

### Reducing the load on 100 HP motors to 60 HP

1. Express HP in KW - 100 HP is 80 KW, 60 HP is 48 KW
2. Determine how many hours per year the motor will run. We'll use: 150 hours per month x 12 months = 1800 hours per year.
3. Plug in the cost of electricity in your area. In the United States, the cost of electricity can run from $.04 to $.10/WKH. We'll use $.06 for our examples.

Energy costs of a 100 HP motor

80 KWH x 1800 hours/year x $.06 KWH = $8,640.00/year

Energy costs of a 60 HP motor

48 KWH x 1800 hours/year x $.06 KWH = $5,184.00/year

**That is a costs savings of $3,456.00 a year.**

On an 8-wheel machine, a savings of $27,648.00 can be achieved in one year.

The easiest way to achieve shot flow control, and thereby reduce energy consumption on a large HP motor, is with a valve and controller like the MagnaValve.

A MagnaValve with controller will cost about $4,000.00/wheel or $32,000 for our example.

**Payback comes in only 14 months!**

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